

Weather in a **WARMER** World

Earth is warming up. The first six months of 2006 were the warmest in the United States since record-keeping began in 1895. In fact, the five hottest years of the last century have all occurred since 1998.

Why does that matter? It means the planet's climate is changing. Our climate has warmed and cooled very gradually in the past, driven mostly by natural causes, such as

variations in Earth's orbit. But scientists believe that human activity is now changing the climate quickly. One result is that weather is becoming more extreme.

Weather is called extreme when it is dangerous or when it is unusual for a given area. Droughts, along with hurricanes, tornadoes, and other fierce storms, are examples of extreme weather.

▼ **THE AVERAGE** global temperature rose by just over one degree during the last hundred years. Although that may not sound like much, it has triggered a chain reaction. The

warmer weather has caused ice-covered areas, such as Greenland, Antarctica, and the Arctic, to melt. Ice reflects the sun's rays back into space and

keeps the planet cooler. But water absorbs sunlight, making the planet warmer. That and other factors have caused global warming to speed

up. The images below show that Arctic sea ice has declined significantly. It has done so at an alarming 8.5 percent per decade.

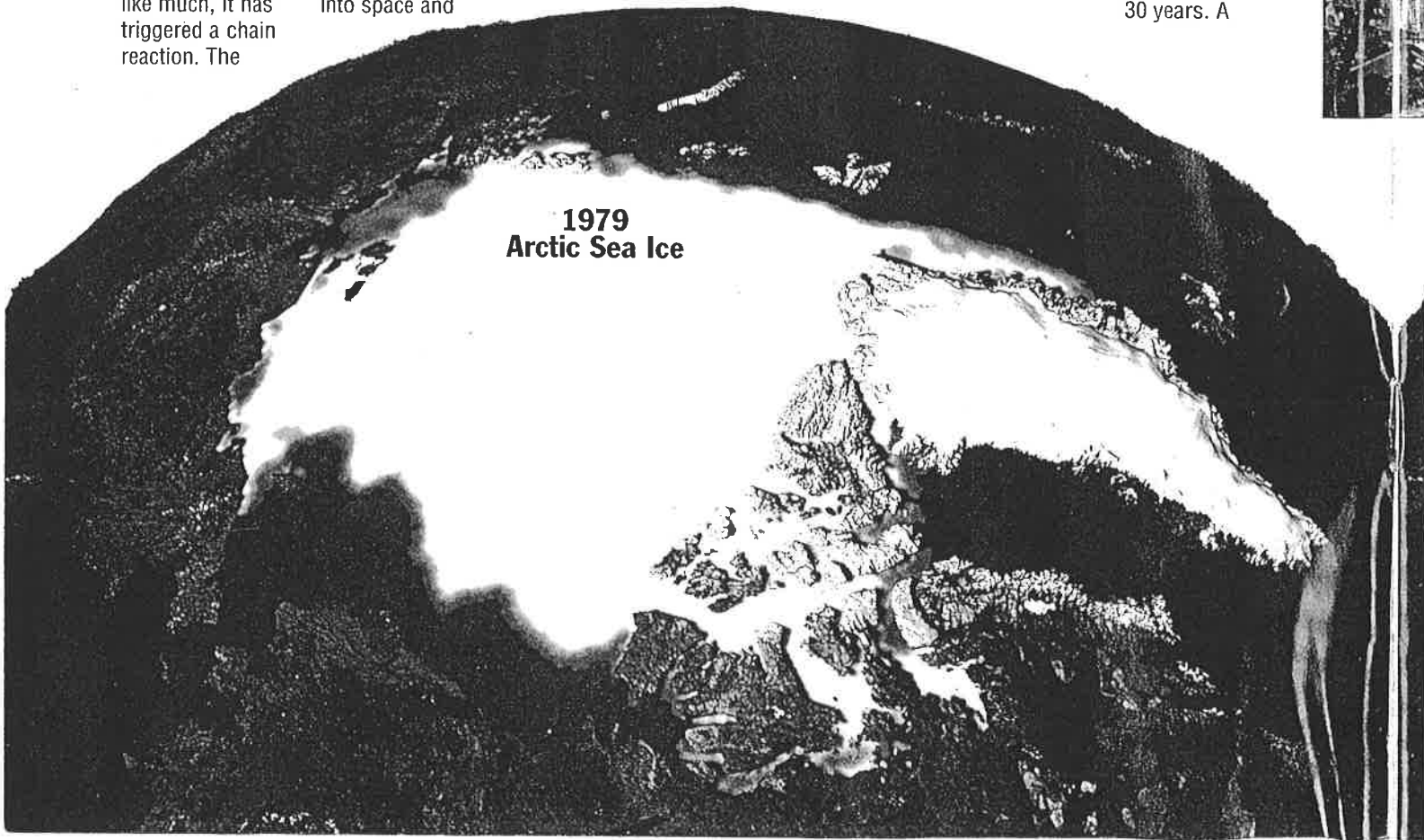
► **GLOBAL WARMING** has already kick-started some extreme weather. The number of severe hurricanes has almost doubled in the past 30 years. A



▲ **THE GREENHOUSE** gases are nitrous oxide, methane, fluorocarbons, and carbon dioxide (CO₂). They are in the atmosphere naturally. One thing these gases do is let the sun's energy in, trapping most of it before it can bounce back into space. Scientists call this the green-

house effect because it works like the glass walls in a greenhouse. Without the greenhouse effect, Earth's surface would be nearly 60 degrees colder—a frozen block of ice. Today, with an excess of greenhouse gases, Earth's climate is changing for the worse.

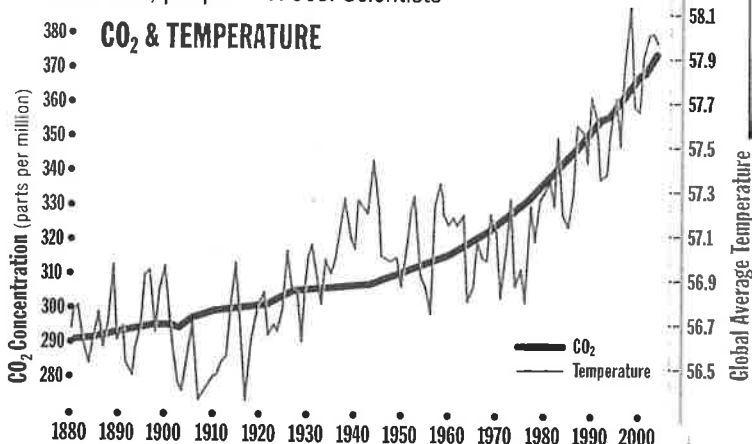
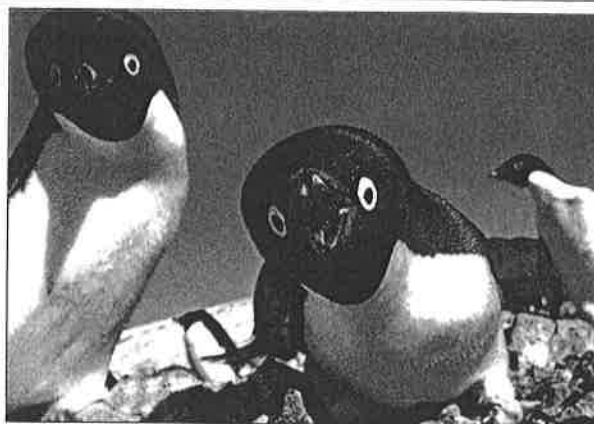
1979
Arctic Sea Ice



▼ **SINCE THE INDUSTRIAL** Revolution began in the 1700s, people have used machines to make work easier. This has increased pollution. At the same time, people

destroyed many forests. Trees naturally absorb carbon dioxide from the air. The loss of trees has greatly increased carbon dioxide levels since the 1700s. Scientists

believe the jump in greenhouse gases is heating up Earth. Today, cars, air conditioners, and many other machines add to air pollution.



▲ **WHAT IMPACT WILL** global warming have on plants and animals? Animals that cannot adapt are likely to die out. Scientists believe that thousands of plants and animals could become extinct. In the Antarctic

Peninsula, average winter temperatures have increased by nine degrees over five decades. The peninsula is home to Adélie penguins. Their numbers dwindled between 1990 and 2004, from 320 pairs to 54.



record number of tropical storms and hurricanes formed in 2005. In the future, melting ice could cause sea levels to rise

more than 20 feet. That could put low-lying areas like Florida under water.

CHECK IT OUT!



How hot could Earth get?
(answer on back cover)

**2005
Arctic Sea Ice**

